APPENDIX A

MANURE CONTROL ALTERNATIVES FOR OPEN FEEDLOTS

Introduction: Water pollution control requirements for animal feeding operations are given in Chapter 65 of the rules of the Iowa department of natural resources. Under these rules, open feedlots meeting the operation permit application requirements of rule 567—65.4(455B) must also comply with the minimum manure control requirements of subrule 65.2(2). Subrule 65.2(2) requires that all feedlot runoff and other manure flows resulting from precipitation events less than or equal to the 25-year, 24-hour rainfall event be collected and land applied.

This appendix describes five feedlot runoff control systems that meet the requirements of subrule 65.2(2). The systems differ in the volume of manure storage provided and in the frequency of manure application. In general, the time interval between required applications increases with increased storage volume.

A feedlot operator who constructs and operates a manure control facility in accordance with the requirements of any of these five systems will not have additional manure control requirements imposed, unless manure discharges from the facility cause state water quality standards violations. In describing the five systems, the major features of each are first reviewed, followed by detailed information on the construction and operation requirements of the system. The system descriptions are presented in this appendix as follows:

SYSTEM 1: ONE MANURE APPLICATION PERIOD PER YEAR

MAJOR SYSTEM FEATURES:

- Adequate capacity must be provided to collect and store the average annual runoff from all feedlot and nonfeedlot areas which drain into the manure control system (additional storage is required if process waters or manure from other sources also drain into the control system).

- Collected manure must be removed from the control system and land applied at least once annually (interval between successive applications cannot exceed 12 months).

DETAILED SYSTEM REQUIREMENTS:

Manure Control System: The manure control system must be constructed to meet or exceed the following requirements:

1. Solids Settling Facilities: Manure solids settling facilities which meet or exceed the requirements of subrule 65.2(1) must precede the feedlot runoff control system.

2. Feedlot Runoff Control System: The feedlot runoff control system shall, as a minimum, have adequate capacity to store the total wastewater volume determined by summing the following:

   A. The volume determined by multiplying the unpaved feedlot area which drains into the control system by the appropriate runoff value from Figure 1.

   B. The volume determined by multiplying the paved feedlot area which drains into the control system by 1.5 times the appropriate runoff value from Figure 1.

   C. The volume determined by multiplying the total area of cropland, pasture and woodland draining into the control system by the greater of the following:

   - The amount of runoff expected from these areas as a result of the 25-year, 24-hour precipitation event.*

   - The average annual runoff expected from these areas.*

   D. The volume determined by multiplying the total roof, farmstead, and driveway area draining into the control system by the average annual runoff expected from these areas.*

   E. The volume of process wastewater which drains into the control system during a 12-month period.

   F. The volume of manure from other sources which discharges into the control system during a 12-month period.

*Expected 25-year, 24-hour and average annual runoff values shall be determined using runoff prediction methodologies of the U.S. Soil Conservation Service (or equivalent methodologies).

Manure Application Requirements: Manure must be removed from the manure control system and land applied in accordance with the following requirements:

1. Solids Settling Facilities: Collected solids must be removed from the solids settling facilities as necessary to maintain adequate capacity to handle future runoff events. As a minimum, solids shall be removed at least once annually.

2. Feedlot Runoff Control System: Accumulated manure shall be removed from the feedlot runoff control system and disposed of by land application at least once annually. The interval between successive application periods shall not exceed 12 months.

During application periods, land application shall be conducted at rates sufficient to ensure complete removal of accumulated manure from the runoff control system in ten or fewer application days. Manure removal is considered complete when the manure remaining in the runoff control system occupies less than 10 percent of the system's design manure storage volume.

Land application of manure shall be conducted on days when weather and soil conditions are suitable. Weather and soil conditions are normally considered suitable for manure application if:

- Land application areas are not frozen or snow-covered.

- Temperatures during application are greater than 32 degrees Fahrenheit.

- Precipitation has not exceeded 0.05 inch per day for each of the three days immediately preceding application and no precipitation is occurring on the day of application.

SYSTEM 2: JULY AND NOVEMBER MANURE APPLICATION

MAJOR SYSTEM FEATURES:

- Adequate capacity must be provided to collect and store the average runoff expected to occur over the eight-month period from December 1 through July 31 from all feedlot and nonfeedlot areas which drain into the manure control system (additional storage is required if process waters or manure from other sources also drain into the control system).

- Collected manure may be removed from the control system and land applied during any period of the year that conditions are suitable. While application during other periods will minimize the need for July and November application, sufficient manure must still be disposed of during July and November to reduce the volume of manure remaining in the control system during these months to less than 10 percent of the system's design manure storage volume.

DETAILED SYSTEM REQUIREMENTS:

Manure Control System: The manure control system must be constructed to meet or exceed the following requirements:

1. Solids Settling Facilities: Manure solids settling facilities which meet or exceed the requirements of subrule 65.2(1) must precede the feedlot runoff control system.

2. Feedlot Runoff Control System: The feedlot runoff control system shall, as a minimum, have adequate capacity to store the total wastewater volume determined by summing the following:

   A. The volume determined by multiplying the unpaved feedlot area which drains into the control system by the appropriate runoff value from Figure 2.

   B. The volume determined by multiplying the paved feedlot area which drains into the control system by 1.5 times the appropriate runoff value from Figure 2.

C. The volume determined by multiplying the total area of cropland, pasture and woodland draining into the control system by the greater of the following:

- The amount of runoff expected from these areas as a result of the 25-year, 24-hour precipitation event.*

- The average runoff expected to occur from these areas during the eight-month period from December 1 to July 31.*

D. The volume determined by multiplying the total roof, farmstead and driveway area draining into the control system by the average runoff expected to occur from these areas during the eight-month period from December 1 to July 31.*

E. The volume of process wastewater which drains into the control system during the eight-month period from December 1 through July 31.

F. The volume of manure from other sources which discharges into the control system during the eight-month period from December 1 through July 31.

*Expected 25-year, 24-hour runoff and average runoff for the eight-month period December 1 through July 31 shall be determined using runoff prediction methodologies of the U.S. Soil Conservation Service (or equivalent methodologies).

Manure Application Requirements: Manure must be removed from the manure control system and land applied in accordance with the following requirements:

1. Solids Settling Facilities: Collected solids must be removed from the solids settling facilities as necessary to maintain adequate capacity to handle future runoff events. As a minimum, solids shall be removed at least once annually.

2. Feedlot Runoff Control System:

A. A feedlot operator must comply with the following manure application requirements if application operations are limited to the months of July and November.

During these months, land application shall be conducted at rates sufficient to ensure complete removal of accumulated manure from the runoff control system in ten or fewer application days. Manure removal is considered complete when the manure remaining in the runoff control system occupies less than 10 percent of the system's design manure storage capacity.

During July and November, manure application operations shall be initiated on the first day that conditions are suitable for land application of manure, and application must continue on subsequent days that suitable conditions exist. If unfavorable weather conditions prevent complete application of manure to be accomplished during July or November, application must be continued into the following month. Manure application operations may cease when complete application has been achieved.

Weather and soil conditions are normally considered suitable for land application of manure if:

- Land application areas are not frozen or snow-covered.

- Temperatures during application are greater than 32 degrees Fahrenheit.

- Precipitation has not exceeded 0.05 inch per day for each of the three days immediately preceding application and no precipitation is occurring on the day of application.

B. A feedlot operator may dispose of accumulated manure during any period of the year that conditions are suitable. While application during other periods will minimize the need for application during July and November, the feedlot operator will still need to dispose of sufficient manure during July and November to reduce the manure volume remaining in the runoff control system during these months to less than 10 percent of the system's design manure storage capacity.

A feedlot operator who does not limit manure application operations to the months of July and November is not required to comply with the specific manure application requirements which apply when application is limited to those months. However, this does not relieve the feedlot operator of the responsibility to conduct application operations at rates and times which are sufficient to ensure that the manure volume remaining in the runoff control system during July and November will be reduced to less than 10 percent of the system's design manure storage capacity.

SYSTEM 3: APRIL, JULY AND NOVEMBER MANURE APPLICATION

MAJOR SYSTEM FEATURES:

- Adequate capacity must be provided to collect and store the average runoff expected to occur during the five-month period from December 1 through April 30 from all feedlot and nonfeedlot areas which drain into the manure control system (additional storage is required if process waters or manure from other sources also drain into the control system).

- Collected manure may be removed from the control system and land applied during any period of the year that conditions are suitable. While application during other periods will minimize the need for application during the specified application months, sufficient manure must still be disposed of during April, July and November to reduce the volume of manure remaining in the control system during these months to less than 10 percent of the system's design manure storage volume.

DETAILED SYSTEM REQUIREMENTS:

Manure Control System: The manure control system must be constructed to meet or exceed the following requirements:

1. Solids Settling Facilities: Manure solids settling facilities which meet or exceed the requirements of subrule 65.2(1) must precede the feedlot runoff control system.

2. Feedlot Runoff Control System: The feedlot runoff control system shall, as a minimum, have adequate capacity to store the total wastewater volume determined by summing the following:

A. The volume determined by multiplying the unpaved feedlot area which drains into the control system by the appropriate runoff value from Figure 3.

B. The volume determined by multiplying the paved feedlot area which drains into the control system by 1.5 times the appropriate runoff value from Figure 3.

C. The volume determined by multiplying the total area of cropland, pasture and woodland draining into the control system by the greater of the following:

- The amount of runoff expected from these areas as a result of the 25-year, 24-hour precipitation event.*

- The average annual runoff expected to occur from these areas during the five-month period from December 1 to April 30.*

D. The volume determined by multiplying the total roof, farmstead, and driveway area draining into the control system by the average runoff expected to occur from these areas during the five-month period from December 1 to April 30.*

E. The volume of process wastewater which drains into the control system during the five-month period from December 1 through April 30.

F. The volume of manure from other sources which discharges into the control system during the five-month period from December 1 through April 30.

*Expected 25-year, 24-hour runoff and average runoff for the five-month period December 1 through April 30 shall be determined using runoff prediction methodologies of the U.S. Soil Conservation Service (or equivalent methodologies).

Manure Application Requirements: Manure must be removed from the manure control system and land applied in accordance with the following requirements:

1. Solids Settling Facilities: Collected solids must be removed from the solids settling facilities as necessary to maintain adequate capacity to handle future runoff events. As a minimum, solids shall be removed at least once annually.

2. Feedlot Runoff Control System:

A. A feedlot operator must comply with the following manure application requirements if application operations are limited to the months of April, July and November.

During these months, land application shall be conducted at rates sufficient to ensure complete removal of accumulated manure from the runoff control system in ten or fewer application days. Manure removal is considered complete when the manure remaining in the runoff control system occupies less than 10 percent of the system’s design manure storage capacity.

During April, July and November, manure application operations shall be initiated on the first day that conditions are suitable for land application of manure, and application must continue on subsequent days that suitable conditions exist. If unfavorable weather conditions prevent complete application of manure to be accomplished during any of these months, manure application must be continued into the following month. Manure application operations may cease when complete application has been achieved.

Weather and soil conditions are normally considered suitable for land application of manure if:

- Land application areas are not frozen or snow-covered.

- Temperatures during application are greater than 32 degrees Fahrenheit.

- Precipitation has not exceeded 0.05 inch per day for each of the three days immediately preceding application and no precipitation is occurring on the day of application.

B. A feedlot operator may dispose of accumulated manure during any period of the year that conditions are suitable. While application during other periods will minimize the need for application during April, July and November, the feedlot operator will still need to dispose of sufficient manure during July and November to reduce the manure volume remaining in the runoff control system during these months to less than 10 percent of the system's design manure storage capacity.

A feedlot operator who does not limit manure application operations to the months of April, July and November is not required to comply with the specific manure application requirements which apply when application is limited to those months. However, this does not relieve the feedlot operator of the responsibility to conduct application operations at rates and times which are sufficient to ensure that the manure volume remaining in the runoff control system during April, July and November will be reduced to less than 10 percent of the system's design manure storage capacity.

SYSTEM 4: APPLICATION AFTER EACH SIGNIFICANT PRECIPITATION EVENT

MAJOR SYSTEM FEATURES:

- Adequate capacity must be provided to collect and store the runoff expected to occur as a result of the 25-year, 24-hour precipitation event from all feedlot and nonfeedlot areas which drain into the manure control system (additional storage is required if process waters or manure from other sources also drain into the control system).

- Collected manure must be removed from the control system and land applied whenever the available (unoccupied) storage capacity remaining in the control system is less than 90 percent of that needed to store runoff from the 25-year, 24-hour storm-land application must begin on the first day that conditions are suitable and must continue until application is completed.

DETAILED SYSTEM REQUIREMENTS:

Manure Control System: The manure control system must be constructed to meet or exceed the following requirements:

1. Solids Settling Facilities: Manure solids settling facilities which meet or exceed the requirements of subrule 65.2(1) must precede the feedlot runoff control system.

2. Feedlot Runoff Control System: The feedlot runoff control system shall, as a minimum, have adequate capacity to store the total wastewater volume determined by summing the following:

   A. The volume determined by multiplying the total feedlot area which drains into the control system by the amount of runoff expected to occur from this area as a result of the 25-year, 24-hour precipitation event.*

   B. The volume determined by multiplying the total area of cropland, pasture and woodland draining into the control system by the amount of runoff expected to occur from these areas as a result of the 25-year, 24-hour precipitation event.*

   C. The volume determined by multiplying the total roof, farmstead and driveway area draining into the control system by the amount of runoff expected to occur from these areas as a result of the 25-year, 24-hour precipitation event.*

   D. The volume of process wastewater which drains into the control system during the five-month period from December 1 through April 30.

   E. The volume of manure from other sources which discharges into the control system during the five-month period from December 1 through April 30.

*Expected 25-year, 24-hour runoff shall be determined by using runoff prediction methodologies of the U.S. Soil Conservation Service (or equivalent methodologies).

Manure Application Requirements: Manure must be removed from the manure control system and land applied in accordance with the following requirements:

1. Solids Settling Facilities: Collected solids must be removed from the solids settling facilities as necessary to maintain adequate capacity to handle future runoff events. As a minimum, solids shall be removed at least once annually.

2. Feedlot Runoff Control System: Accumulated manure shall be removed from the feedlot runoff control system and disposed of by land application following each precipitation or snowmelt runoff event which results in significant manure accumulations in the control system. Manure accumulations will be considered significant whenever the available (unoccupied) storage capacity remaining in the control system is less than 90 percent of that required to store the runoff from the 25-year, 24-hour storm.

Once the available storage capacity remaining in the manure control system is reduced to the point that manure application is necessary, manure application operations must be initiated on the first day that conditions are suitable for land application of manure, and application must continue on subsequent days that suitable conditions exist. Application operations may cease when the storage capacity available in the control system has been restored to greater than 90 percent of that required to store runoff from the 25-year, 24-hour storm.

During application periods, land application shall be conducted at rates sufficient to ensure complete removal of accumulated manure from the control system in ten or fewer application days.

Weather and soil conditions are normally considered suitable for land application of manure if:

- Land application areas are not frozen or snow-covered.

- Temperatures during application are greater than 32 degrees Fahrenheit.

- Precipitation has not exceeded 0.05 inch per day for each of the three days immediately preceding application and no precipitation is occurring on the day of application.

SYSTEM 5: APRIL/MAY AND OCTOBER/NOVEMBER APPLICATION

MAJOR SYSTEM FEATURES:

- Adequate capacity must be provided to collect and store the average runoff expected to occur over the eight-month period from October 1 through May 31 from all feedlot and nonfeedlot areas which drain into the manure control system (additional storage is required if process waters or manure from other sources also drain into the control system).

- Collected manure may be removed from the control system and land applied during any period of the year that conditions are suitable. While application during other periods will minimize the need for application during the April/May and the October/November periods, sufficient manure must still be disposed of during each of these two-month periods to reduce the volume of manure remaining in the control system during these periods to less than 10 percent of the system's design manure storage volume.

DETAILED SYSTEM REQUIREMENTS:
Manure Control System: The manure control system must be constructed to meet or exceed the following requirements:

1. Solids Settling Facilities: Manure solids settling facilities which meet or exceed the requirements of subrule 65.2(1) must precede the feedlot runoff control system.

2. Feedlot Runoff Control System: The feedlot runoff control system shall, as a minimum, have adequate capacity to store the total wastewater volume determined by summing the following:

   A. The volume determined by multiplying the unpaved feedlot area which drains into the control system by the appropriate runoff value from Figure 4.

   B. The volume determined by multiplying the paved feedlot area which drains into the control system by 1.5 times the appropriate runoff value from Figure 4.

   C. The volume determined by multiplying the total area of cropland, pasture and woodland draining into the control system by the greater of the following:

   - The amount of runoff expected from these areas as a result of the 25-year, 24-hour precipitation event.*

   - The average runoff expected to occur from these areas during the eight-month period from October 1 to May 31.*

   D. The volume determined by multiplying the total roof, farmstead, and driveway draining into the control system by the average runoff expected to occur from these areas during the eight-month period from October 1 to May 31.*

   E. The volume of process wastewater which drains into the control system during the eight-month period from October 1 through May 31.

   F. The volume of manure from other sources which discharges into the control system during the eight-month period from October 1 through May 31.

*Expected 25-year, 24-hour runoff and average runoff for the eight-month period October 1 through May 31 shall be determined using runoff prediction methodologies of the U.S. Soil Conservation Service (or equivalent methodologies).

Manure Application Requirements: Manure must be removed from the manure control system and land applied in accordance with the following requirements:

1. Solids Settling Facilities: Collected solids must be removed from the solids settling facilities as necessary to maintain adequate capacity to handle future runoff events. As a minimum, solids shall be removed at least once annually.

2. Feedlot Runoff Control System: At a minimum, accumulated manure shall be removed from the feedlot runoff control system and disposed of by land application during the periods April 1 through May 31 and October 1 through November 30.

During each of these periods, land application shall be conducted at rates sufficient to ensure complete removal of accumulated manure from the runoff control system in ten or fewer application days. Manure removal is considered complete when the manure remaining in the runoff control system occupies less than 10 percent of the system's design manure storage capacity.

A feedlot operator may dispose of accumulated manure during any period of the year that conditions are suitable. While application during other periods will minimize the need for application during the April/May and October/November periods, the feedlot operator will still need to dispose of sufficient manure during these periods to reduce the manure volume remaining in the runoff control system during these periods to less than 10 percent of the system's design manure storage capacity.

Land application of manure shall be conducted on days when weather and soil conditions are suitable. Weather and soil conditions are normally considered suitable for manure application if:

- Land application areas are not frozen or snow-covered.

- Temperatures during application are greater than 32 degrees Fahrenheit.

- Precipitation has not exceeded 0.05 inch per day for each of the three days immediately preceding application and no precipitation is occurring on the day of application.

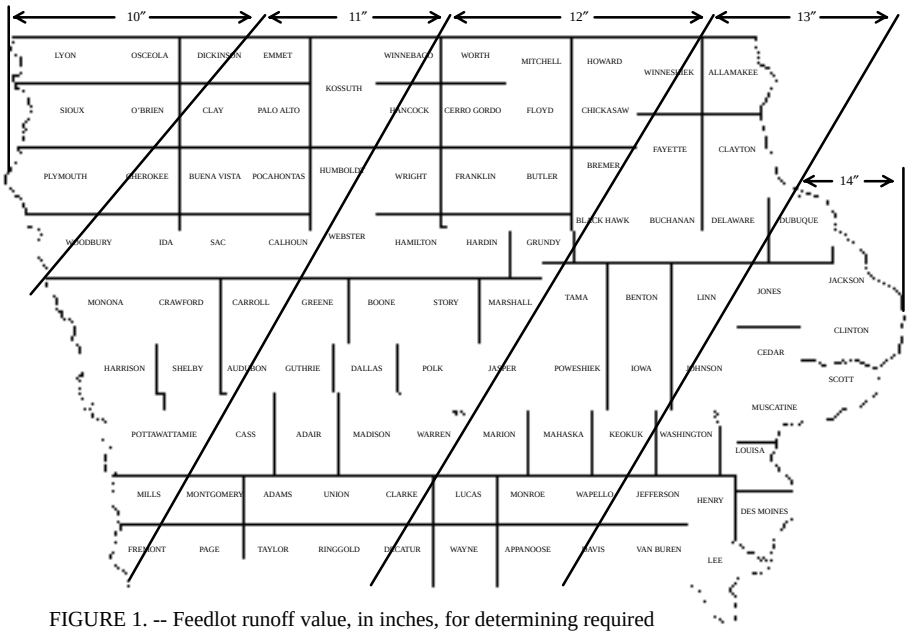

FIGURE 1. -- Feedlot runoff value, in inches, for determining required capacity of the "One Manure Application Per Year" manure control system.

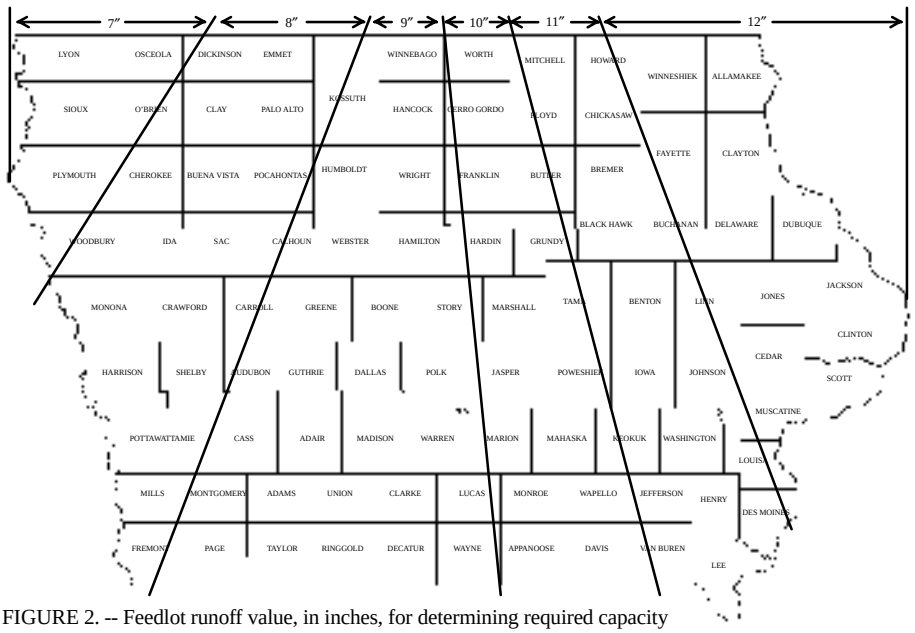

FIGURE 2. -- Feedlot runoff value, in inches, for determining required capacity of the "July and November Manure Application" manure control system.

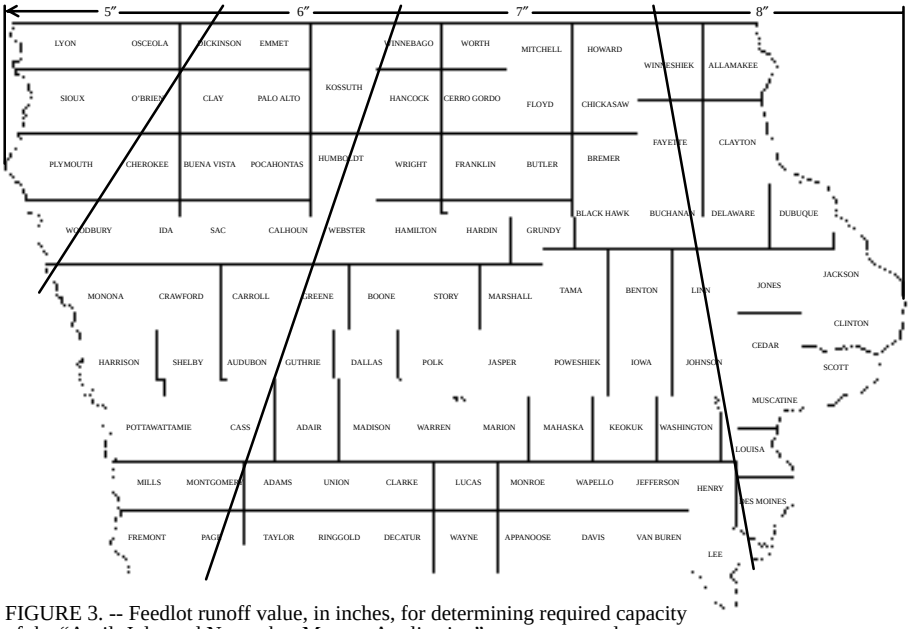

FIGURE 3. -- Feedlot runoff value, in inches, for determining required capacity of the "April, July, and November Manure Application" manure control system.

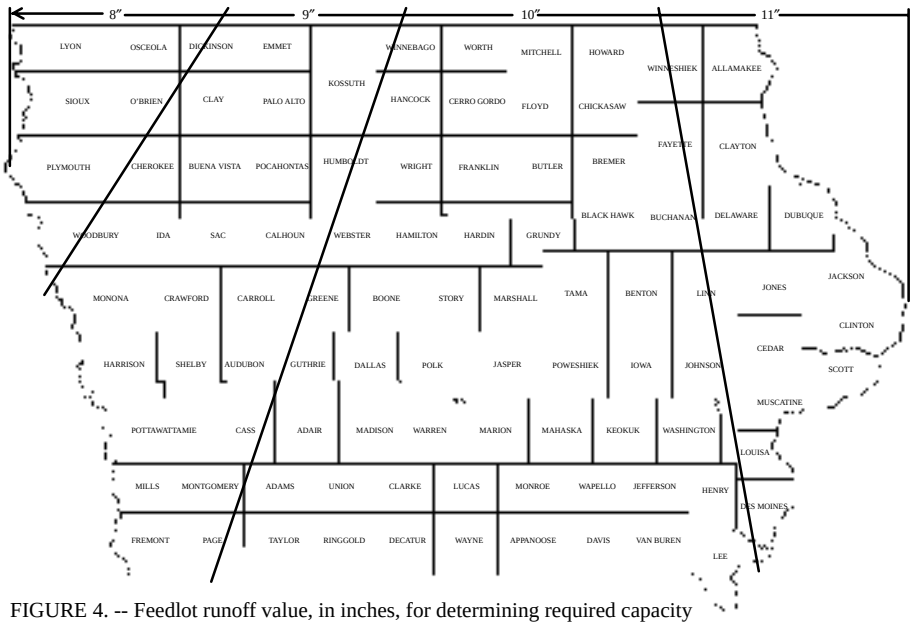

FIGURE 4. -- Feedlot runoff value, in inches, for determining required capacity of the "April/May and October/November Manure Application" manure control system.

APPENDIX B
LAND DISPOSAL OF ANIMAL MANURE
Rescinded IAB 2/14/96, effective 3/20/96

APPENDIX C
INTERIM MATRIX

Instructions: The department recommends that each applicant complete the interim matrix and submit it with the construction permit application to expedite the review process. Circle the score that is associated with the details that best describe the proposed livestock confinement facility. Note the clarifications in the gray boxes below the criteria. In addition to meeting all other department minimum requirements, the proposed livestock confinement facility must attain a minimum of 100 points to be eligible for a construction permit. Note that documentation from the applicant is required for each criterion marked with an asterisk. Specifications on design, construction, operation and maintenance that will be included as a condition in any construction permit are marked with a double asterisk.

CRITERIA	SCORE
Proposed Confinement Feeding Operation Structure	
A. ADDITIONAL SEPARATION DISTANCES (IN ADDITION TO THE MINIMUM REQUIRED)	
A1. The following criteria shall apply to require additional separation distance (see Tables 6 and 7 at the end of this chapter for minimum separation distance) between the proposed confinement feeding operation structure and a **residence** not owned by the owner of the confinement feeding operation, a **commercial enterprise**, a **religious institution** or an **educational institution** as defined in 65.1(455B):	
250 feet or more but less than 500 feet	5
500 feet or more but less than 750 feet	10
750 feet or more but less than 1,000 feet	15
1,000 feet or more but less than 1,250 feet	20
1,250 feet or more	25
• The department will award points only for the single building, of the four listed above, closest to the proposed confinement feeding operation. • Refer to pages 2 and 7 of the construction permit application package to determine the animal unit capacity and animal weight capacity of the proposed confinement feeding operation. Refer to Tables 6 and 7 of these rules to determine minimum required separation distances.	
A2. Additional separation distance (see Tables 6 and 7 at the end of this chapter for minimum separation distance) between the proposed confinement feeding operation structure and a **public use area** as defined in 65.1(455B):	
250 feet or more but less than 500 feet	5
500 feet or more but less than 750 feet	10
750 feet or more but less than 1,000 feet	15
1,000 feet or more but less than 1,250 feet	20
1,250 feet or more	25

- "Public use area," as defined in 65.1(455B), means that portion of land owned by the United States, the state, or a political subdivision with facilities which attract the public to congregate and remain in the area for significant periods of time. Facilities include, but are not limited to, picnic grounds, campgrounds, cemeteries, lodges, shelter houses, playground equipment, lakes as listed in Table 2 at the end of this chapter, and swimming beaches. It does not include a highway, road right-of-way, parking areas, recreational trails or other areas where the public passes through, but does not congregate or remain in the area for significant periods of time.
- Refer to pages 2 and 7 of the construction permit application package to determine the animal unit capacity and animal weight capacity of the proposed confinement feeding operation. Refer to Tables 6 and 7 of these rules to determine minimum required separation distances.

A3. Additional separation distance (above and beyond 100 feet) between the proposed confinement feeding operation structure and a **primary highway** as defined in 65.1(455B):

250 feet or more but less than 500 feet	5
500 feet or more but less than 750 feet	10
750 feet or more but less than 1,000 feet	15
1,000 feet or more but less than 1,250 feet	20
1,250 feet or more	25

- "Primary highway," as defined in 65.1(455B), means a road designated as an interstate, U.S. highway or state highway in the 2002 Iowa Transportation Map, including streets in municipalities under the jurisdiction of the department of transportation.
- Minimum separation distance = 100 feet.

A4. Additional separation distance (above and beyond 500 feet) between the proposed confinement feeding operation structure and a **major water source** as defined in 65.1(455B):

250 feet or more but less than 500 feet	5
500 feet or more but less than 750 feet	10
750 feet or more but less than 1,000 feet	15
1,000 feet or more but less than 1,250 feet	20
1,250 feet or more	25

- "Major water source," as defined in 65.1(455B), means a lake, reservoir, river or stream located within the territorial limits of the state, any marginal river area adjacent to the state which can support a floating vessel capable of carrying one or more persons during a total of a six-month period in one out of ten years, excluding periods of flooding. Major water sources in the state are listed in Tables 1 and 2 at the end of this chapter.
- Minimum separation distance = 500 feet.

A5. Additional separation distance (above and beyond 500 feet for major water sources or above and beyond 200 feet for water sources other than major) between the proposed confinement feeding operation structure and a **high-quality water resource** as defined in 2002 Iowa Acts, Senate File 2293, section 32:

250 feet or more but less than 500 feet	5
500 feet or more but less than 750 feet	10
750 feet or more but less than 1,000 feet	15
1,000 feet or more but less than 1,250 feet	20
1,250 feet or more	25

- "High-quality water resource," as defined in 2002 Iowa Acts, Senate File 2293, means that part of a water source or wetland that the department has designated as any of the following:
  - A high-quality water (Class "HQ") or a high-quality resource water (Class "HQR") according to 567—Chapter 61, in effect on January 1, 2001.
  - A protected water area system, according to a state plan adopted by the department in effect on January 1, 2001.
- Minimum separation distance to major water sources = 500 feet.
- Minimum separation distance to water sources other than major = 200 feet.

A6. Additional separation distance (see Tables 6 and 7 for minimum separation distance) between the proposed confinement feeding operation structure and a **critical public area** as defined in 65.1(455B):

1,000 feet or more but less than 1,250 feet	20
1,250 feet or more	25

- "Critical public area," as defined in 65.1(455B), means land that is owned or managed by the federal government, by the department, or by a political subdivision and that has unique scenic, cultural, archaeological, scientific, or historic significance or contains a rare or valuable ecological system. Critical public areas include:
  - State wildlife refuges listed in 571—subrule 52.1(2);
  - Recreation areas, state parks, state parks managed by another governmental agency, and state preserves as listed in 571—61.2(461A);
  - County parks and recreation areas listed in "Outdoor Adventure Guide," May 2002, Iowa Association of County Conservation Boards, which is incorporated by reference and is on file in the state law library;
  - National wildlife refuges listed on the "Iowa Map Page," June 24, 2002, which is incorporated by reference; this document is on file at the state law library where it is also available via the Internet at http://midwest.fws.gov/maps/iowa.htm;
  - National monuments and national historic sites listed on the "National Park Service Guide for Iowa," June 24, 2002, which is incorporated by reference; this document is on file at the state law library where it is also available via the Internet at http://165.83.219.77/parksearch/state/state.cfm?statevar=ia;
  - Parks in Iowa that are under the jurisdiction of the U.S. Army Corps of Engineers and listed in "Lakeside Recreation for the Upper Mississippi Basin States," June 24, 2002, which is incorporated by reference; this document is on file at the state law library where it is also available via the Internet at http://www.usace.army.mil/inet/functions/cw/cecwo/uppermis.htm.
- Use public use area minimum separation distance, as listed in Tables 6 and 7 at the end of this chapter.

A7. Additional separation distance (above and beyond 200 feet) of 500 feet or more between a proposed confinement feeding operation structure and a **watercourse**, other than a major water source, as provided in Iowa Code section 455B.204:

500 feet or more	5

- Minimum separation distance to water sources other than major = 200 feet.

Proposed Land Application Area				
A8. The following criteria shall apply to require additional separation distance (above and beyond 750 feet) between the application of manure originating from a confinement feeding operation and a **residence** not owned by the owner of the confinement feeding operation, a **commercial enterprise**, a **religious institution** or an **educational institution** as defined in 65.1(455B):				
250 feet or more but less than 500 feet	5	5	5	AVG
500 feet or more but less than 750 feet	10	10	10	
750 feet or more but less than 1,000 feet	15	15	15	
1,000 feet or more but less than 1,250 feet	20	20	20	
1,250 feet or more	25	25	25	
An applicant who incorporates manure by injection shall be entitled to:	15			

- The department will award points only for the single building, of the four listed above, closest to the proposed application fields. The three application fields to be evaluated are the three that are closest to the proposed confinement feeding operation facility.
- The points awarded for the three fields must be averaged.
- If a small animal feeding operation (500 animal units or less) as defined in 2002 Iowa Acts, Senate File 2293, is constructing an earthen basin, a manure management plan is required.
- Minimum manure application separation distances for liquid manure from a confinement feeding operation to a residence not owned by the titleholder of the land, a business, a church, a school, or a public use area is 750 feet, as specified in Iowa Code section 455B.162. As specified in 65.3(3), the separation distance for application of manure by spray irrigation equipment shall be measured from the actual wetted perimeter and the closest point of the residence, business, church, school, or public use area. This separation distance shall not apply if any of the following apply: (1) the liquid manure is injected into the soil or incorporated within the soil not later than 24 hours after the original application; (2) the titleholder of the land benefiting from the separation distance requirement executes a written waiver with the titleholder of the land where the manure is applied; (3) the liquid manure originates from a small animal feeding operation; (4) the liquid manure is applied by low-pressure spray irrigation equipment pursuant to paragraph 65.3(3)*"d."* Spray irrigation equipment shall be set up to provide for a minimum distance of 100 feet between the wetted perimeter as specified in the spray irrigation equipment manufacturer's specifications and the boundary line of the property where the equipment is being operated. The actual wetted perimeter, as determined by wind speed and direction and other operating conditions, shall not exceed the boundary line of the property where the equipment is being operated. For property which includes a road right-of-way, a railroad right-of-way or an access easement, the property boundary line shall be the boundary line of the right-of-way or easement.

A9. Additional separation distance (above and beyond 750 feet) between the application of manure originating from a confinement feeding operation and a **public use area** as defined in 65.1(455B):				
250 feet or more but less than 500 feet	5	5	5	AVG
500 feet or more but less than 750 feet	10	10	10	
750 feet or more but less than 1,000 feet	15	15	15	
1,000 feet or more but less than 1,250 feet	20	20	20	
1,250 feet or more	25	25	25	
An applicant who incorporates manure by injection shall be entitled to:	15			

- The three application fields to be evaluated are the three that are closest to the proposed confinement feeding operation facility.
- The points awarded for the three fields must be averaged.
- "Public use area," as defined in 65.1(455B), means that portion of land owned by the United States, the state, or a political subdivision with facilities which attract the public to congregate and remain in the area for significant periods of time. Facilities include, but are not limited to, picnic grounds, campgrounds, cemeteries, lodges, shelter houses, playground equipment, lakes as listed in Table 2 at the end of this chapter, and swimming beaches. It does not include a highway, road right-of-way, parking areas, recreational trails or other areas where the public passes through, but does not congregate or remain in the area for significant periods of time.
- Minimum manure application separation distances for liquid manure from a confinement feeding operation to a residence not owned by the titleholder of the land, a business, a church, a school, or a public use area is 750 feet, as specified in Iowa Code section 455B.162. As specified in 65.3(3), the separation distance for application of manure by spray irrigation equipment shall be measured from the actual wetted perimeter and the closest point of the residence, business, church, school, or public use area. This separation distance shall not apply if any of the following apply: (1) the liquid manure is injected into the soil or incorporated within the soil not later than 24 hours after the original application; (2) the titleholder of the land benefiting from the separation distance requirement executes a written waiver with the titleholder of the land where the manure is applied; (3) the liquid manure originates from a small animal feeding operation; (4) the liquid manure is applied by low-pressure spray irrigation equipment pursuant to paragraph 65.3(3)*"d."* Spray irrigation equipment shall be set up to provide for a minimum distance of 100 feet between the wetted perimeter as specified in the spray irrigation equipment manufacturer's specifications and the boundary line of the property where the equipment is being operated. The actual wetted perimeter, as determined by wind speed and direction and other operating conditions, shall not exceed the boundary line of the property where the equipment is being operated. For property which includes a road right-of-way, a railroad right-of-way or an access easement, the property boundary line shall be the boundary line of the right-of-way or easement.

A10. Additional separation distance (above and beyond 100 feet in some cases, zero in others) between the application of manure originating from a confinement feeding operation and a **primary highway** as defined in 65.1(455B):

250 feet or more but less than 500 feet	5	5	5	AVG
500 feet or more but less than 750 feet	10	10	10	
750 feet or more but less than 1,000 feet	15	15	15	
1,000 feet or more but less than 1,250 feet	20	20	20	
1,250 feet or more	25	25	25	
An applicant who incorporates manure by injection shall be entitled to:	15			

- The three application fields to be evaluated are the three that are closest to the proposed confinement feeding operation facility.
- The points awarded for the three fields must be averaged.
- "Primary highway," as defined in 65.1(455B), means a road designated as an interstate, U.S. highway or state highway in the 2002 Iowa Transportation Map, including streets in municipalities under the jurisdiction of the department of transportation.
- Minimum separation distance for spray irrigation in most cases = 100 feet; minimum separation distance for other land application = 0.

A11. Additional separation distance (above and beyond 750 feet) between the application of manure originating from a confinement feeding operation and a **critical public area** as defined in 65.1(455B):

1,000 feet or more but less than 1,250 feet	20	20	20	AVG
1,250 feet or more	25	25	25	

- The three application fields to be evaluated are the three that are closest to the proposed confinement feeding operation facility.
- The points awarded for the three fields must be averaged.
- "Critical public area," as defined in 65.1(455B), means land that is owned or managed by the federal government, by the department, or by a political subdivision and that has unique scenic, cultural, archaeological, scientific, or historic significance or contains a rare or valuable ecological system. Critical public areas include:
  - State wildlife refuges listed in 571—subrule 52.1(2);
  - Recreation areas, state parks, state parks managed by another governmental agency, and state preserves as listed in 571—61.2(461A);
  - County parks and recreation areas listed in "Outdoor Adventure Guide," May 2002, Iowa Association of County Conservation Boards, which is incorporated by reference and is on file in the state law library;
  - National wildlife refuges listed on the "Iowa Map Page," June 24, 2002, which is incorporated by reference; this document is on file at the state law library where it is also available via the Internet at http://midwest.fws.gov/maps/iowa.htm;
  - National monuments and national historic sites listed on the "National Park Service Guide for Iowa," June 24, 2002, which is incorporated by reference; this document is on file at the state law library where it is also available via the Internet at http://165.83.219.77/parksearch/state/state.cfm?statevar=ia;
  - Parks in Iowa that are under the jurisdiction of the U.S. Army Corps of Engineers and listed in "Lakeside Recreation for the Upper Mississippi Basin States," June 24, 2002, which is incorporated by reference; this document is on file at the state law library where it is also available via the Internet at http://www.usace.army.mil/inet/functions/cw/cecwo/uppermis.htm.
- Minimum separation distance = 750 feet.

A12. Additional separation distance (no minimum required) between the application of manure originating from a confinement feeding operation and a **major water source** as defined in 65.1(455B):

1,000 feet or more but less than 1,250 feet	20	20	20	AVG
1,250 feet or more	25	25	25	

- The three application fields to be evaluated are the three that are closest to the proposed confinement feeding operation facility.
- The points awarded for the three fields must be averaged.
- "Major water source," as defined in 65.1(455B), means a lake, reservoir, river or stream located within the territorial limits of the state, any marginal river area adjacent to the state which can support a floating vessel capable of carrying one or more persons during a total of a six-month period in one out of ten years, excluding periods of flooding. Major water sources in the state are listed in Tables 1 and 2 at the end of this chapter.
- Minimum separation distance = 0.

A13. Additional separation distance (no minimum required) between the application of manure originating from a confinement feeding operation and a **high-quality water resource** as defined in 2002 Iowa Acts, Senate File 2293, section 32:				
500 feet or more but less than 750 feet	10	10	10	AVG
750 feet or more but less than 1,000 feet	15	15	15	
1,000 feet or more but less than 1,250 feet	20	20	20	
1,250 feet or more	25	25	25	

- The three application fields to be evaluated are the three that are closest to the proposed confinement feeding operation facility.
- The points awarded for the three fields must be averaged.
- "High-quality water resource," as defined in 2002 Iowa Acts, Senate File 2293, means that part of a water source or wetland that the department has designated as any of the following:
  - A high-quality water (Class "HQ") or a high-quality resource water (Class "HQR") according to 567—Chapter 61, in effect on January 1, 2001.
  - A protected water area system, according to a state plan adopted by the department in effect on January 1, 2001.
- Minimum separation distance = 0.

A14. Additional separation distance (no minimum required) between the application of manure originating from a confinement feeding operation and the nearest **watercourse** as defined in Iowa Code section 455B.204, other than a major water source	5

- Minimum separation distance = 0.

Farm Operation Characteristics	
B. IF THE CONFINEMENT FEEDING OPERATION IS LOCATED ON LAND OWNED OR OPERATED BY THE SAME FAMILY FOR THREE OR MORE YEARS	15

- "Family," as defined in 65.1(455B), means persons related to each other as spouse, parent, grandparent, sibling, and other lineal descendants of the grandparents or their spouses.

C. IF THE OWNER OF THE PROPOSED CONFINEMENT FEEDING OPERATION OWNS THE ANIMALS MAINTAINED BY THE CONFINEMENT FEEDING OPERATION AND PROVIDES SUBSTANTIAL LABOR IN PROVIDING FOR THEIR MAINTENANCE	10

- "Substantial labor," as defined in 65.1(455B), means providing 50 percent or more of the total annual hours of physical work necessary to maintain animals in a confinement feeding operation.

D. IF THE CONFINEMENT FEEDING OPERATION IS LOCATED ON LAND OWNED BY ONE OF THE FOLLOWING PERSONS:	
D1. A person who resides on the land	5

- "Land" means the same tract of land or contiguous tracts of land.

D2. A person who closest resides to the proposed confinement feeding operation structure	10
D3. A person who performs the majority of the physical work which significantly contributes to the operation	10

D4. A person who is involved in making substantial improvements to the confinement feeding operation, if the improvements do not provide for expansion by more than 150 percent of the animal unit capacity of the confinement feeding operation	10
• "Substantial improvements," as defined in 65.1(455B), means increasing the animal unit capacity of a facility by 1 percent through 150 percent.	
D5. A person who qualifies as a beginning farmer*	15
• "Beginning farmer," as defined in Iowa Code section 175.2, means an individual, partnership, family farm corporation, or family farm limited liability company, as defined in Iowa Code section 9H.1, with a low or moderate net worth that engages in farming or wishes to engage in farming.	

Manure Management Practices	
E. MANURE MANAGEMENT PRACTICES	
E1. Incorporation of manure within 24 hours of application	5
E2. Use of a cover over the manure storage structure or a natural crust or oil sprinkling**	5
• "Covered," as defined in 65.1(455B), means organic or inorganic material, placed upon an animal feeding operation structure used to store manure, which significantly reduces the exchange of gases between the stored manure and the outside air. Organic materials include, but are not limited to, a layer of chopped straw, other crop residue, or a naturally occurring crust on the surface of the stored manure. Inorganic materials include, but are not limited to, wood, steel, aluminum, rubber, plastic, or Styrofoam. The materials shall shield at least 90 percent of the surface area of the stored manure from the outside air. Cover shall include an organic or inorganic material which current scientific research shows reduces detectable odor by at least 75 percent. A formed manure storage structure directly beneath a floor where animals are housed in a confinement feeding operation is deemed to be covered. • Experience has shown that a natural crust may occur in dairy operations, but in few other situations. If a producer states that a naturally forming crust will form and the crust does not form, then the producer will be required to cover the structure to meet the definition of "covered." • All practices will be included as conditions in any construction permit.	
E3. Participation in the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) conservation program referred to as the "filter strip program at 33 feet"	10
• The filter strip must be adjacent to a watercourse in the land application area. • The department may request NRCS maintenance agreements to ensure proper design, installation and maintenance of filter strips. If a filter strip is present but not designed by NRCS, it must meet NRCS standard specifications. • The application field does not need to be owned by the confinement facility owner to receive points. • The 10 points are awarded only one time (not cumulative for each field with filter strips).	
E4. Installation of a filter designed to reduce odors from exhaust fans**	10
• Plans for the design, operation and maintenance of the filter will be incorporated and made a condition in any construction permit.	
E5. Utilization of feed or feed additives containing low-phytase corn or the feeding of phytase	10
• The department may request feed records and feed analysis, if necessary.	

E6. Utilization of a biofilter or impermeable cover**	10
• Plans for the design, installation, operation and maintenance of the biofilter will be incorporated and made a condition in any construction permit.	
E7. Utilization of a methane digester (recovery) system for energy or an anaerobic digester**	25
E8. Utilization of landscaping or other similar controls approved by the department**	10
• Plans for the design, installation and maintenance of the landscape configuration will be incorporated and made a condition in any construction permit.	
E9. Establishment or expansion of a filter strip from 33 feet or more up to 120 feet	15
• The filter strip must be adjacent to a watercourse in the land application area. • The department may request NRCS maintenance agreements to ensure proper design, installation and maintenance of filter strips. If a filter strip is present but not designed by NRCS, it must meet NRCS standard specifications. • The application field does not need to be owned by the confinement facility owner to receive points. • The 15 points are awarded only one time (not cumulative for each field with filter strips). • The facility can be awarded both points for the filter strip's being a minimum of 33 feet (10 points as provided in E3 above) and 15 points under E9.	
E10. Construction of a secondary containment structure**	15
E11. Construction of a manure storage structure beneath a confinement feeding operation structure building**	10
E12. Participation in the USDA NRCS program referred to as the "contour buffer strip program"	25
• The contour buffer strips must be present in the land application area. • The department may request NRCS maintenance agreements to ensure proper design, installation and maintenance of contour buffer strips. If contour buffer strips are present but not designed by NRCS, they must meet NRCS standard specifications. • The application field does not need to be owned by the confinement facility owner to receive points. • The 25 points are awarded only one time (not cumulative for each field with contour buffer strips).	
F. IF THE CONFINEMENT FEEDING OPERATION PROVIDES FOR THE DISTRIBUTION OF BULK DRY ANIMAL NUTRIENT PRODUCTS, THE PERSON RECEIVING THE PRODUCT AGREES THAT THE PRODUCT WILL BE INCORPORATED, AND THE PERSON WHO INCORPORATES THE MANURE INCLUDES THE CONDITION AS PART OF THE PERSON'S MANURE MANAGEMENT PLAN	25
• Currently, the record-keeping requirements for Iowa Code chapter 200A distributors meet the department's manure management plan requirements. The licensed bulk dry animal nutrient product distributor is required to submit to the Iowa department of agriculture and land stewardship (IDALS) distribution records twice a year detailing where the product was sold and spread. The department will continue to recognize Iowa Code chapter 200A record keeping as a manure management plan. • IDALS will modify the 200A forms so that incorporation activities are included as a part of the record keeping.	

*For the department to accurately complete the interim matrix, the applicant must submit supporting documentation to attain those points.

**Specifications on design, construction, operation and maintenance will be included as a condition in any construction permit.

TABLE 1
Major Water Sources—Rivers and Streams

County	River/Stream	Location
Adair	Middle Nodaway River	Adams/Adair Line to Hwy. 92
	Middle River	All
	West Fork-Middle Nodaway	Mouth to County Road N51
Adams	East Nodaway River	Adams/Taylor Line to County Road H24
	Middle Nodaway River	All
Allamakee	Bear Creek	Mouth, S1, T99N, R6W to West Line S30, T100N, R6W
	Mississippi River	All
	Paint Creek	Mouth to road crossing in S18, T97N, R4W
	Upper Iowa River	Mouth, S36, T100N, R4W to West Line S31, T100N, R6W
	Village Creek	Mouth, S33, T99N, R3W, upstream to Confluence with Unnamed Creek in S23, T98N, R4W
	Waterloo Creek	Mouth, S35, T100N, R6W to North Line S8, T100N, R6W
	Yellow River	Mouth, S34, T96N, R3W to Confluence with Upper Branch Yellow River, S4, T96N, R6W
Appanoose	Chariton River	Missouri Line to Rathbun Dam
	South Chariton River	Appanoose/Wayne Line to Rathbun Lake
Benton	Bear Creek	North County Line to Mouth at Cedar River, S21, T86N, R10W
	Cedar River	All
	Iowa River	All
	Opossum Creek	SE ¼ S5, T84N, R9W to East County Line
	Prairie Creek 2	Road Crossing N ½ S24, T83N, R12W to Benton/Linn Line
	Wolf Creek	All